MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. F. KUMARAMANGALAM): (a) Against the total provision of Rs 482.80 crores in RE 1991-92 for the Department of Space, the provision made in BE 1992-93 is Rs. 510 02 crores. The increased provision in BE 1992-93 is mainly on account of more provision made under Space Applications for the major ongoing project INSAT-2 C, D&E and major programmes, National Natural Resources Management System (NNRMS), Regional Remote Sensing Service Centre (RRSSC) and Microwave Remote Sensing Programme (MRSP) and under Launch Vehicle Technology for the major ongoing Project, Geo-synchronous Satellite Launch Vehicle (GSLV).

The reduction of allocation of funds under heads 'Satellite Development' and 'Space Sciences' in BE 1992-93 compared to RE 1991-92 was due to:—

(i) Completion of Indian Remote Sensing Satellite-IB (IRS-IB) Project and its operationalisation;

(ii) Acquisition of major components for IRS-IC/ID series of satellites;

(iii) Completion of major work on INSAT-2A satellite (launched on 10th July 1922);

(iv) Completion of a major part of mesosphere, Stratosphere & Troposphere (MST) Radar Project and its partial operationalisation; and

(vi) Lower requirements of funds under programmes of Physical Research Laboratory (PRL) and ISR, Geosphere-Biosphere Programme (IGBP).

(b) India has estabhshed capacity to launch upto 100-150 kg class satellites into low earth orbit, through the launch of Augmented Satellite Launch Vericle (ASLV) in May this year. Steps to augment indigenous capabilfity to launch (i) Indian Remote Sensing Satellite (IRS) class satellites through the development of Polar Satellite Launch Vehicles (PSLV) and (ii) Indian National Satellite (INSAT) class satellites through the development of Geostationary Satellite Launch Vehicle (GSLV) are on. The first developmental launch of PSLV is scheduled in the first quarter of 1993 and that of GSLV during 1995/96.

Launching of INSAT-2A

2420. MAULANA OBAIDULLAH KHAN AZMI:
SHRIMATI VEENA VERMA:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that India's indigenously built Satellite INSAT-2A has successfully been launched into space atop Ariane rocket from a French base;

(b) if so, the details thereof indicating foreign exchange component involved therein;

(c) what are the various purposes for which this Satellite would be utilised and in what manner its design is different from the earlier such Satellites; and

(d) by when INSAT-2A would be come fully operational and what would be its life span?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. F. KUMARAMANGALAM): (a) Yes Sir.

(b) INSAT-2A was launched by an Ariane-44L vehicle from the Guyana Space Centre, Kourou on 10th July, 1992 at 0412 hours Indian Standard Time. Araine lanch vehicle placed the 1906 kg INSAT-2A in the Geostationary Transfer Orbit (GTO) with an apogee of 35,812 km and perigee of 198 km. After this, using its own onboard propulsion system and Liquid Apogee Motor INSAT-2A has been manoeuvred to the Near Geostationary Orbit. All the spacecraft deployments have been completed succesefully and all the systems are functioning satisfactorily. The satellite will reach its alotted Geostationary orbital slot by

end of July 1992 after which payloads will be switched 'on'.

The approved outlay for the launch services for INSAT-2A and INSAT-2B is Rs. 198.30 crores all in foreign exchange.

The approved outlay for the INSAT-2A and INSAT-2B excluding launch services, is Rs. 329.94 crores out of which Rs. 63.20 crores is meant for Launch All Risk Insurance Premium for INSAT-2A, 2B and 2C, Rs. 110.83 crores for facility establishment (programme elements). The foreign exchange content for the entire project is Rs. 157.39 crores.

(c) INSAT-2A will be used for providing Telecommunications, Broadcasting and Meteorological services. A Search and Rescue Payload, which was not present in the INSAT-1 satellites has been added to INSAT-2A. This will provide an instantaneous alert in case of an emergency to vehicles carrying an 406 MHz emergency beacon. INSAT-2A also, carries six transponders in the extended C-band. These transponders will be mainly used for business communications and regional TV networking.

The design of INSAT-2A is very different from INSAT-1 satellites as INSAT-2A uses systems which have been developed in India over several years. The major distinguishing design features include (a) no deployments in transfer orbit; (b) single axis accordian type deployment for the solar array; (c) independent TT&C transmitter; (d) use of global coverage horn for on-orbit telemetry; (e) use of solid state power amplifiers in the C-band; (f) body mounted antenna for C-band reception and transmission of very High Resolution Radiometer (VHRR), Data Relay Transponder (DRT) and Satellite-Aided Search & Rescue (SAS&R) signals; (g) unique microprocessor based Attitude and Orbit Control System; (h) inclusion of Inertial reference system using Gyros; and (i) U-bus concept for power system.

(d) It is planned to start the phased switch "on" of the payloads from around end of July 1992. The satellite will be put into use after all the systems are completely tested and characterised. This will take about two to three weeks. The operational fuel-limited life is currently estimated to be about nine years.

Impact of U.S. ban on India's space Programme

2421. DR. SANJAYA SINH:
SHRI P. UPENDRA:
SHRI GURUDAS DAS GUPTA:
SHRI N. E. BALARAM:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the two year U.S. ban on supply of materials to the I.S.R.O. would hit the country's space programme;

(b) if so, what are the details thereof; and

(c) what steps Governmnet have taken/propose to take to ensure that the country's Space Programme does not suffer?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. R. KUMARAMANGALAM): (a) and (b) Indian Space Research Organisation (ISRO) has satellite as well as launch vehicle programmes. Under launch vehicle programmes, Augmented Satellite Launch Vehicle (ASLV), Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch vehicle (GSLV) can be listed. Under satellite programme, the Communication Satellites called Indian National Satellite (INSAT), the Remote Sensing Satellites called Indian Remote Sensing (IRS) Satellites and Low Earth orbiting ones like Stretched Rohini Satellite Series (SROSS) can be mentioned. Even though the decision of USA will affect all these programmes to some extent, all necessary advance actions have been taken to ensure that the impact is minimal.